

WHAT IS CLAIMED IS:

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1. A position light for use on an aircraft, comprising:  
a housing structure;  
at least one light source arranged inside said housing structure;  
a prism having an input face, an output face, and a transfective  
face to receive, distribute, and direct light emitted by said light source,  
said light source being located externally to said prism; and  
a lens through which emitted light passes.

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2. The position light of claim 1 wherein a first portion of the light  
emitted from said light source undergoes total internal reflection at said  
transfective face of said prism and a second portion of the light emitted  
from said light source is transmitted through said transfective face, the  
combination of said first and second portions of light producing a lighting  
pattern with a sharp angular cutoff corresponding to the critical angle for  
15 said total internal reflection at said transfective face.

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3. The position light of claim 1, further comprising means for  
aligning said light source to direct said light source.

4. The position light of claim 3, wherein said aligning means further  
includes means for carrying away heat generated by said light source.

5. The position light of claim 1, further comprising means for  
controlling the amount of electrical current applied to said light source.

6. The position light of claim 5, wherein said current control means  
is one of located inside said housing structure and located remotely from  
said housing structure.

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7. The position light of claim 5, wherein said current control means  
includes means for modulating the intensity of said light source.

8. The position light of claim 1, wherein said light source emits one  
of a green, red, and white light.

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9. The position light of claim 1 wherein said light comprises a  
plurality of light sources.

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1.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 2.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 3.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 4.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 5.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 6.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 7.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 8.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 9.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$   
 10.  $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$

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24. A solid state position light for use on an aircraft, comprising:

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26. A position light for use on an aircraft, comprising:

a prism having an input face, an output face, and a transfective face to receive, distribute, and direct light; and

5 at least one light source wherein a first portion of the light emitted from said light source undergoes total internal reflection at said transfective face of said prism and a second portion of the light emitted from said light source is transmitted through said transfective face, the combination of said first and second portions of light producing a lighting pattern with a sharp angular cutoff corresponding to the critical angle for  
10 said total internal reflection at said transfective face.

27. The position light of claim 26 wherein the light emitted from said light source forms a continuum of incident angles of light on said transfective face such that some light exceeds the critical angle of total internal reflection for said prism, some light is at the critical angle of said prism, and some light does not exceed the critical angle of said prism.  
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28. A process for providing lighting for use on an aircraft, comprising:

providing a housing structure;

placing at said housing structure at least one light source;

applying electrical current to said light sources;

receiving, distributing, and directing light emitted from said light sources by means of a prism having an input face, an output face, and a transfective face, said light sources being located externally to said prism; and  
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25 passing the emitted light through a lens.

29. The process of claim 28 wherein a first portion of the light emitted from said light source undergoes total internal reflection at said transfective face of said prism and a second portion of the light emitted from said light source is transmitted through said transfective face, the combination of said first and second portions of light producing a lighting  
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pattern with a sharp angular cutoff corresponding to the critical angle for said total internal reflection at said transfective face.

30. The process of claim 28, further comprising the steps of providing a second prism having an input face, an output face, and a transfective face and arranging said second prism at the transfective face of said prism to further shape and direct the light emitted by said light source.

31. The process of claim 28, further comprising the step of providing facets on the input face of said prism.

32. The process of claim 31, further comprising the step of including facets on all faces of said prism.

33. The process of claim 32, further comprising the step of shaping said facets to one of flat and curved shapes.

34. The process of claim 30, further comprising the step of providing facets on the input face of said second prism.

35. The process of claim 34, further comprising the step of including facets on all faces of said second prism.

36. The process of claim 28, further comprising the step of controlling said electrical current at one of from inside said housing structure and remotely from said housing structure.

37. A process for providing position lighting for use on an aircraft, comprising:

providing a housing structure;

placing at said housing structure a plurality of solid state light sources that are aligned to direct said light sources;

applying and controlling electrical current to said solid state light sources;

receiving, distributing, and directing light emitted from said solid state light sources by means of a prism having an input face, an output face, and a transfective face, said light sources being located externally to said prism; and

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passing the emitted light through a lens.

38. A process for providing position lighting for use on an aircraft, comprising:

providing a housing structure having an interior surface;

5 placing at said housing structure a plurality of light sources that are aligned to direct said light sources, said light sources electrically connected in series-parallel;

aligning said light sources to direct said light sources;

carrying away heat generated by said light sources;

10 optically filtering light from said light sources;

diffusing light from said light sources;

receiving, distributing, and directing light emitted from said light sources by means of a first prism having a faceted input face, an output face, and a transflective face, said light sources being located externally to said first prism;

15 shaping and directing the light emitted by said light sources by means of a second prism disposed at the transflective face of said first prism and having a faceted input face, an output face, and a transflective face;

20 applying and controlling electrical current to said light sources; and passing the emitted light through a lens.

39. A process for providing position lighting for use on an aircraft, comprising:

providing at least one light source;

25 applying electrical current to said light sources; and

receiving, distributing, and directing light emitted from said light source by means of a prism having an input face, an output face, and a transflective face, wherein a first portion of the light emitted from said light source undergoes total internal reflection at said transflective face of said prism and a second portion of the light emitted from said light source is transmitted through said transflective face, the combination of said first

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and second portions of light producing a lighting pattern with a sharp angular cutoff corresponding to the critical angle for said total internal reflection at said transfective face.

- 5 40. The process of claim 39 wherein the light emitted from said light source forms a continuum of incident angles of light on said transfective face such that some light exceeds the critical angle of total internal reflection for said prism, some light is at the critical angle of said prism, and some light does not exceed the critical angle of said prism.

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